

## CLAIMS

1. A method of operating a radio network comprising a primary station (PS) and a plurality of secondary stations (SS1, SS2, SS3), wherein the primary station determines the level of interest by users of secondary stations in a service by allocating at least one plurality of access slots in which a secondary station can transmit an indication of its interest.
2. A method as claimed in claim 1, wherein the primary station estimates the level of interest from the number of transmitted indications and selects a transmission mode of the service in dependence on whether the level of interest is relatively high or relatively low.
3. A method as claimed in claim 2, wherein the transmission mode for a relatively high level of interest is point-to-multipoint.
4. A method as claimed in claim 2, wherein the transmission mode for a relatively low level of interest is point-to-point.
5. A method as claimed in claim 2, wherein the primary station sets a threshold level for determining the transmission mode of the service and, when the number of indications exceeds the threshold level, the transmission mode for the relatively high level of interest is operated.
6. A method as claimed in any one of claims 1 to 5, wherein each access slot is characterised by a combination of one time slot and one signature, and wherein the primary station maps each plurality of access slots to a different service such that all secondary stations interested in one service transmit using one of a plurality of access slots, and in that each combination of one time slot and one signature is contained in not more than one of the pluralities of access slots.

7. A method as claimed in claim 6, wherein each plurality of access slots is characterised in that each access slot in the plurality uses the same signature and in that each access slot in the plurality uses a different time slot.

5 8. A method as claimed in claim 6, wherein each plurality of access slots is characterised in that each access slot in the plurality uses the same time slot and in that each access slot in the plurality uses a different signature.

9. A method as claimed in any one of claims 1 to 8, wherein a  
10 secondary station indicates its interest by transmitting a predetermined signal in a preselected one of a plurality of access slots.

10. A method as claimed in any one of claims 1 to 8, wherein a  
15 secondary station indicates its interest by transmitting a predetermined signal in a randomly selected one of a plurality of access slots.

11. A method as claimed in any one of claims 1 to 10, wherein the indications of interest are transmitted as spread spectrum signals and the number of indications is estimated by estimating the number of correlation  
20 peaks in a given access time slot.

12. A method as claimed in any one of claims 1 to 10, wherein the indications of interest are transmitted as spread spectrum signals and the number of indications is estimated by estimating the received energy in a given  
25 access slot.

13. A method as claimed in claim 1, wherein the secondary stations are allocated to a respective one of two or more pluralities of access slots and in that a secondary station wishing to transmit an indication of interest,  
30 transmits in its allocated plurality of access slots.

14. A method as claimed in claim 13, wherein when the estimated level of interest exceeds a predetermined level, the primary station instructs secondary stations waiting to transmit in their allocated access slot not to transmit.

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15. A method as claimed in any one of claims 1 to 14, wherein a secondary station indicating an interest in a service also indicates a quality level for receiving the service.

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16. A method as claimed in claim 15, wherein the primary station transmits a higher quality level of service in a mode different from the transmission of a lower quality level of service.

17. A method as claimed in any one of claims 1 to 16, characterised in that the primary station transmits a basic data stream as a point-to-multipoint transmission and a supplementary data stream for enhancing the quality of the basic data stream as a point-to-point transmission.

18. A radio network comprising a primary station (PS) and a plurality of secondary stations (SS1, SS2, SS3), wherein the primary station (PS) includes means (14) for determining the level of interest by users of secondary stations in a service, said means adapted to allocate a plurality of access slots in which a secondary station can transmit an indication of its interest.

19. A radio network as claimed in claim 18, further comprising estimating means (17) for estimating the level of interest from the number of transmitted indications and mode selection means (18) for selecting a transmission mode of the service in dependence on whether the level of interest is relatively high or relatively low.

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20. A radio network as claimed in claim 18 or 19, wherein each access slot is characterised by a combination of one time slot and one

signature, wherein the primary station (PS) comprises means (14, 19) for mapping each plurality of access slots to a different service such that all secondary stations interested in one service transmit using one of a plurality of access slots, and wherein each combination of one time slot and one  
5 signature is contained in not more than one of the pluralities of access slots.

21. A radio network as claimed in claim 18, comprising spread spectrum transceiving means (10, 22) and wherein the estimating means (17) is adapted to estimate the level of interest by estimating the number of  
10 correlation peaks in a respective access slot.

22. A radio network as claimed in claim 18, comprising spread spectrum transceiving means (10, 22) and wherein the estimating means (17) is adapted to estimate the level of interest by estimating the received energy in  
15 a respective access slot.

23. A primary station for use in a radio network comprising at least one primary station (PS) and a plurality of secondary stations (SS1, SS2, SS3), wherein the primary station (PS) includes means (14) for determining  
20 the level of interest by users of secondary stations in a service, said means adapted to allocate a plurality of access slots in which a secondary station can transmit an indication of its interest.

24. A secondary station for use in a radio network comprising a  
25 primary station (PS) and a plurality of the secondary stations (SS1, SS2, SS3), wherein the primary station (PS) includes means (14) for determining the level of interest by users of secondary stations in a service, said means adapted to allocate a plurality of access slots in which a secondary station can transmit an indication of its interest, wherein the secondary station (SS1, SS2, SS3) has  
30 means (26, 22) for indicating its interest in the service by transmitting a predetermined signal in selected one of the plurality of access slots.